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(71)Applicant : OLYMPUS OPTICAL CO LTD

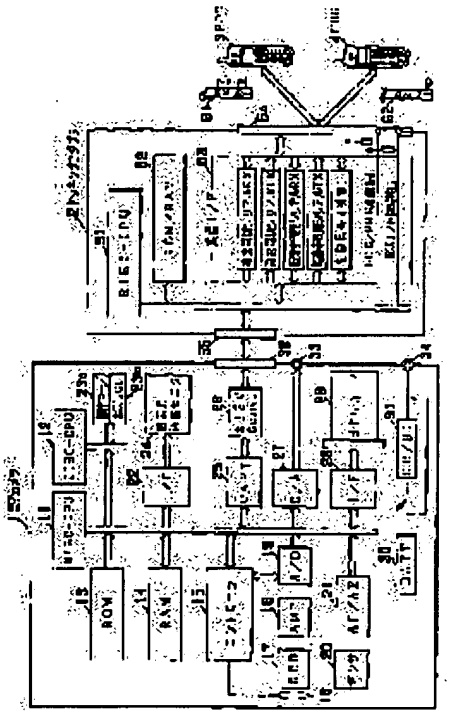
(72)Inventor : HISAYOSHI HIROKAZU

(54) ADAPTER DEVICE, IMAGE PICKUP DEVICE, AND IMAGE PICKUP SYSTEM PROVIDED WITH THESE DEVICES

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an adapter device, an image pickup device, and an image pickup system provided with these device which surely transmit and receive picture data independently of the classification of a used telephone line.

SOLUTION: When picture data picked up by an electronic camera 1 is put on the radio telephone channel of a digital portable telephone 3, a PHS 4, or the like, picture data is converted into a data structure, with which picture data can be communicated, by an RISC-CPU 11, and the data structure is converted into data according with the classification of the radio telephone channel by a docking adapter 2 connected to the electronic camera 1 with respect to software and is transmitted and received.



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CLAIMS

[Claim(s)]
[Claim 1] An electronic image pick-up means to change a photographic subject image into a picture signal, and the image-processing means which carries out transform processing of the picture signal changed with the above-mentioned electronic image pick-up means to image data, The communications processing means which carries out transform processing of the image data by which transform processing was carried out with the above-mentioned image-processing means to the DS which can communicate, While being adapter equipment connected to preparation ****** equipment and carrying out transform processing of the DS by which transform processing was carried out with the above-mentioned communications processing means at the time of transmission and which can be communicated to the data according to the class of telephone line further Adapter equipment characterized by providing the storage means which memorized the data-conversion program for carrying out transform processing of the data which are different according to the class of this telephone line at the time of reception to the DS for these communications processing means.
[Claim 2] The connecting means which the above-mentioned storage means memorizes two or more kinds of data-conversion programs corresponding to the class of telephone line, and is connected to the above-mentioned telephone line, A detection means to detect the class of this telephone line when it connects with the telephone line through the above-mentioned connecting means, Adapter equipment according to claim 1 or 2 characterized by having further a selection means to choose the specific data-conversion program of 1 from the data-conversion program of the above-mentioned two or more classes memorized by the above-mentioned storage means, according to the detection result of the above-mentioned detection means.
[Claim 3] The above-mentioned data-conversion program is adapter equipment according to claim 1 or 2 characterized by being an error correction processing program.
[Claim 4] Claim 1 characterized by having further a sending-out means to send out the information which shows the class of telephone line to the above-mentioned image pick-up equipment thru/or adapter equipment given in any 1 of 3.
[Claim 5] An electronic image pick-up means to change a photographic subject image into a picture signal, and the image-processing means which carries out transform processing of the picture signal changed with the above-mentioned electronic image pick-up means to image data, The communications processing means which carries out transform processing of the image data changed with the above-mentioned image-processing means to the DS which can communicate, While carrying out transform processing of the DS by which transform processing was carried out with the above-mentioned communications processing means at the time of transmission and which can be communicated to the data according to the class of telephone line further Image pick-up equipment characterized by providing the connecting means which connects the adapter equipment which has the storage means which memorized the data-conversion program for carrying out transform processing of the data which are different according to the class of this telephone line at the time of reception to the DS for these communications processing means.

[Claim 6] An electronic image pick-up means to change a photographic subject image into a picture signal, and the image-processing means which carries out transform processing of the picture signal changed with the above-mentioned electronic image pick-up means to image data, The communications processing means which carries out transform processing of the image data changed with the above-mentioned image-processing means to the DS which can communicate, While being preparation ****** equipment and adapter equipment connected to the above-mentioned image pick-up equipment and carrying out transform processing of the DS by which transform processing was carried out with the communications processing means of the above-mentioned image pick-up equipment at the time of transmission and which can be communicated to the data according to the class of telephone line further The image pick-up system characterized by providing adapter equipment equipped with the storage means which memorized the data-conversion program for carrying out transform processing of the data which are different according to the class of this telephone line at the time of reception to the DS for the communications processing means of the above-mentioned image pick-up equipment.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to an image pick-up system equipped with the image pick-up equipment which can transmit and receive image data, the adapter equipment connected to this image pick-up equipment, and these equipments using the telephone line.
[0002]
[Description of the Prior Art] Although the technique which sends and receives digital data using transmission routes, such as the telephone line, is in the place known widely conventionally, the technique which sends and receives the image data photoed with the electronic camera using this telephone line etc. is also being established in recent years. When carrying out such a communication link, the technique which many connect adapters, such as a modem, to an electronic camera, and is connected to the telephone line through this adapter is taken.
[0003] On the other hand, wireless pocket mold telephones, such as the so-called digital cellular phone (PDC) and PHS, are used widely in recent years. Each of these is wireless types, and is rich in portability, and considering the actual condition of an electronic camera with much use of being carried too, these radio telephone networks are the optimal as a transmission route of image data.
[0004] Here, the example of 1 configuration of the conventional picture transmission system for putting the data concerning an electronic camera on a wireless pocket mold telephone is explained briefly.
[0005] Drawing 7 is the explanatory view having shown the configuration of the starting image transmission system, and shows the image transmission system which connects a digital cellular phone 103 to an electronic camera 101 through PC card 102.
[0006] As shown in drawing, PC card 102 is equipped with high-speed synchronous serial RX besides digital error correction circuit 122a constituted as hardware, high-speed synchronous serial TX, low-speed asynchronous serial RX, low-speed asynchronous serial TX, communication link I/F122 equipped with the function to process each signal of a transmission-and-reception control signal, the predetermined I/F section, etc., and this communication link I/F122 is controlled by CISC-CPU121. Moreover, in an electronic camera 101, it connects by the PC card header unit 113, and PC card 102 is further equipped with the connector area 123 to which a digital cellular phone 103 is connected.
[0007] In addition, an electronic camera 101 is equipped with RISC-CPU111 which manages control of the whole equipment, and I/F112 for connection with PC card 102 is arranged.
[0008] In the conventional picture transmission system which makes such a configuration, the classification of the radiotelephony connected for the reason mentioned later was restricted to one. Although a digital cellular phone and PHS are known as a classification of radiotelephony now, these cannot be used in common, when it takes into consideration as a transmission means of digital data. That is, it is necessary to differ in a digital error correction circuit and a telephone I/F means also in the above-mentioned PC card, and to change the PC card used according to the classification of a telephone.

[0009] On the other hand, since such a PC card will exist as an adapter of variety independence

according to the telephone classification connected, it consists of hardware that the above-mentioned digital error correction circuit should be equipped [therefore] only with the circuit of dedication, without realizing by software.
[0010]
[Problem(s) to be Solved by the Invention] Thus, although the image data transmission and reception using a radio telephone network are convenient, similarity does not have the modem which these digital cellular phones and PHS have taken a completely different data transmission method, therefore is connected to a circuit, either. Moreover, in respect of a digital data processing system, each these wireless type telephone line differs also from the general wire telephone circuit, and modems also differ.

[0011] That is, while the user of an electronic camera needed to prepare the modem corresponding to the classification (classification of a cable, wireless or a cellular phone, and PHS) of the telephone line and was very uneconomical, having considered carrying two or more sets, it was inconvenient also to carrying and migration.
[0012] This invention is made in view of this trouble, and it does not depend on the classification of the telephone line to be used, but aims at offering an image pick-up system equipped with the adapter equipment which can send and receive image data certainly, image pick-up equipment, and these equipments.
[0013]
[Means for Solving the Problem] In order to attain the above-mentioned purpose the 1st adapter equipment of this invention An electronic image pick-up means to change a photographic subject image into a picture signal, and the image-processing means which carries out transform processing of the picture signal changed with the above-mentioned electronic image pick-up means to image data, The communications processing means which carries out transform processing of the image data by which transform processing was carried out with the above-mentioned image-processing means to the DS which can communicate, While being adapter equipment connected to preparation ****** equipment and carrying out transform processing of the DS by which transform processing was carried out with the above-mentioned communications processing means at the time of transmission and which can be communicated to the data according to the class of telephone line further It is characterized by providing the storage means which memorized the data-conversion program for carrying out transform processing of the data which are different according to the class of this telephone line at the time of reception to the DS for these communications processing means.
[0014] In order to attain the above-mentioned purpose the 2nd adapter equipment of this invention In the adapter equipment of the above 1st the above-mentioned storage means The connecting means which memorizes two or more kinds of data-conversion programs corresponding to the class of telephone line, and is connected to the above-mentioned telephone line, A detection means to detect the class of this telephone line when it connects with the telephone line through the above-mentioned connecting means, It is characterized by having further a selection means to choose the specific data-conversion program of 1 from the data-conversion program of the above-mentioned two or more classes memorized by the above-mentioned storage means, according to the detection result of the above-mentioned detection means.
[0015] In order to attain the above-mentioned purpose, in the above 1st or the 2nd adapter equipment, the above-mentioned data-conversion program of the 3rd adapter equipment of this invention is an error correction processing program.
[0016] In order to attain the above-mentioned purpose, the 4th adapter equipment of this invention is further equipped with a sending-out means to send out the information which shows the class of telephone line to the above-mentioned image pick-up equipment, in the above 1st thru/or the 3rd adapter equipment.
[0017] In order to attain the above-mentioned purpose the 1st image pick-up equipment of this invention An electronic image pick-up means to change a photographic subject image into a picture signal, and the image-processing means which carries out transform processing of the picture signal changed with the

above-mentioned electronic image pick-up means to image data, The communications processing means which carries out transform processing of the image data changed with the above-mentioned image-processing means to the DS which can communicate, While carrying out transform processing of the DS by which transform processing was carried out with the above-mentioned communications processing means at the time of transmission and which can be communicated to the data according to the class of telephone line further It is characterized by providing the connecting means which connects the adapter equipment which has the storage means which memorized the data-conversion program for carrying out transform processing of the data which are different according to the class of this telephone line at the time of reception to the DS for these communications processing means.

[0018] In order to attain the above-mentioned purpose the 1st image pick-up system of this invention An electronic image pick-up means to change a photographic subject image into a picture signal, and the image-processing means which carries out transform processing of the picture signal changed with the above-mentioned electronic image pick-up means to image data, The communications processing means which carries out transform processing of the image data changed with the above-mentioned image-processing means to the DS which can communicate, While being preparation ****** equipment and adapter equipment connected to the above-mentioned image pick-up equipment and carrying out transform processing of the DS by which transform processing was carried out with the communications processing means of the above-mentioned image pick-up equipment at the time of transmission and which can be communicated to the data according to the class of telephone line further It is characterized by providing adapter equipment equipped with the storage means which memorized the data-conversion program for carrying out transform processing of the data which are different according to the class of this telephone line at the time of reception to the DS for the communications processing means of the above-mentioned image pick-up equipment.

[0019]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained with reference to a drawing.

[0020] Drawing 1 is drawing having shown the outline configuration of the image pick-up system which is 1 operation gestalt of this invention.

[0021] as shown in drawing 1 , this image pick-up system comes out with the docking adapter 2 which makes the digital image data concerning this electronic camera 1 communicate by the radio telephone network, and consists of inserting between the electronic camera 1 which installs the function which sends and receives digital data, such as recorded image data, by communication link between external instruments inside, and this electronic camera 1 and radio telephone network (so-called digital cellular phone (PDC) 3 or PHS4 grade).

[0022] The serial connector (Metz or male) 32 for usually connecting with a personal computer etc., and sending and receiving this personal computer etc. and digital data is arranged by the electronic camera 1. The serial connector (male or Metz) 55 corresponding to this serial connector 32 is arranged by the above-mentioned docking adapter 2, and direct continuation of the connecting cord etc. is carried out to it through an electronic camera 1. Moreover, the connector 54 connected with a digital cellular phone 3 or PHS4 through a predetermined cable is arranged by the docking adapter 2.

[0023] The electronic camera 1 equips the bottom of control of RISC-CPU11 with a lens 16, CCD17, amplifier 18, A/D converter 19, the lens controller 15, and the RAM14 grade as a means to change a photographic subject image into a picture signal, and an image-processing means which carries out transform processing of the changed picture signal to image data.

[0024] Moreover, actuation key 23a to which an electronic camera 1 performs predetermined actuation of a photometry, the sensor 20 for ranging, these control circuits (AF/AE circuit) 21, the liquid crystal display monitor 24 that displays the image picturized or recorded, this monitor I/F22, and the electronic camera 1 concerned, LCD23b for a display which performs various displays, LCD23b for a these actuation key 23a display etc., The circuit which can be comparatively managed with low-speed processing The video signal to CISC-CPU12 and the external indicating equipment to control D/A converter 27 for outputting, the video outlet terminal 33, the memory card 29 that can be detached and

attached and that records the image data picturized with the electronic camera 1 concerned, this I/F28 for memory cards, the power-source slack dc-battery 30 of the electronic camera 1 concerned, and an external power Although it has the terminal 34 for external powers for using it, and the DC to DC converter 31 grade, since these components are not different from that with which the usual electronic camera well-known in itself is equipped at all, detailed explanation here is omitted.

[0025] It can succeed in an electronic camera 1 because RISC-CPU11 controls the communications processing means which carries out transform processing of the image data by which transform processing was carried out to the DS which can communicate based on the predetermined information memorized by ROM13 by the above-mentioned image-processing means.

[0026] Moreover, the electronic camera 1 is equipped with **12V converter 26 for presenting transmission with UART25 for sending and receiving digital data, such as image data, between external instruments, and these digital data, and the serial connector 32 which is an object for connection with an external instrument, and consists of a 9Pin connector. In addition, as shown in drawing 2 , the digital image data picturized or recorded can be transmitted to this serial connector 32 by connecting personal computer 5 grade. Or digital data can be communicated between the telephone lines of a cable through this modem 6 by connecting the modem 6 grade which usually has a function.

[0027] Here, the communication facility with which an electronic camera 1 is equipped is explained briefly. Although the electronic camera 1 in this operation gestalt is equipped with the communication facility which used the telephone line for self, the communication procedure is performed in conformity with the information stored in ROM13 to the bottom of control of RISC-CPU11. That is, a modem 6 is connected to a serial connector 32, and it connects with a general wire telephone circuit through this modem 6, and suppose further that it sets in the communication link condition by actuation key 23a etc. At this time, RISC-CPU11 performs various processings, such as protocol conversion for a predetermined communication link setup, negotiation processing with a communication link place, and data transfer, based on the information memorized by ROM13. Furthermore, control of a data compression etc. is also performed if needed. In addition, since these communication procedures etc. are well-known techniques, a detailed explanation here is omitted.

[0028] The docking adapter 2 is adapter equipment connected to the above-mentioned electronic camera 1, and as mentioned above, it is equipped with the serial connector 32 of an electronic camera 1, and the serial connector 55 which connects. Furthermore, the connector 54 connected with a digital cellular phone 3 or PHS4 through a predetermined cable is arranged. Although a digital cellular phone 3 and PHS4 are all radio telephone networks, it differs in the class of telephone line mutually. The docking adapter 2 of this operation gestalt functions as an adapter for connecting an electronic camera 1 to the radio telephone network which differs in the class of these telephone lines.

[0029] Moreover, predetermined processing is needed in order for digital cellular phone 3 grade to usually transmit image data, since only digital I/F for voice is carried. The docking adapter 2 concerned also achieves the function as a processor to apply.

[0030] In order to demonstrate such a function the docking adapter 2 of this operation gestalt While carrying out transform processing of the DS by which was equipped with RISC-CPU51 and transform processing was carried out with the communications processing means in this electronic camera 1 to the bottom of control of this RISC-CPU51 at the time of the transmission from an electronic camera 1 and which can be communicated to the data according to the class of telephone line further Data which are different according to the class of this telephone line at the time of reception The bottom of storage means slack ROM/RAM52 which memorized the data-conversion program of transform processing for carrying out transform processing to the DS for these communications processing means, and control of RISC-CPU51 is equipped with communication link I/F53 which actually achieves the telephone line, and I/feed function.

[0031] As mentioned above, digital I/F for voice data which digital cellular phone 3 grade has is not suitable for transmitting image data, and digital error correction processing and data transfer processing original with a wireless circuit are newly needed. With this operation gestalt, it is characterized by realizing these processings by software. The program concerning these processings is stored in the

above ROM/RAM52, and is performed by RISC-CPU51.
[0032] Moreover, although the classification of the connected radio telephone network is distinguished by detection means to mention later, the processing changed into the data according to the classification of the telephone line concerned in response to this result is also processed by software. And the program concerning this processing is also stored in above-mentioned ROM/RAM52, and is performed by RISC-CPU51.
[0033] Thereby, above-mentioned communication link I/F53 does not have as hardware the digital error correction circuit with which the conventional PC card (refer to drawing 7) etc. is equipped, although it has the function to process each signal of high-speed synchronous serial RX, high-speed synchronous serial TX, low-speed asynchronous serial RX, low-speed asynchronous serial TX, and a transmission-and-reception control signal.
[0034] Moreover, the above-mentioned connector 54 achieves the duty as a connector for radiotelephony connection equipped with the function of a detection sake for whether the radiotelephony connected while a digital cellular phone 3 or PHS4 was connected is a digital cellular phone 3, or it is PHS4. Moreover, a serial connector 55 achieves the duty as a connector for connection with an electronic camera 1, and the duty as a sending-out means to send out the information which shows the class of telephone line to an electronic camera 1.
[0035] In this operation gestalt, it can accomplish by distinguishing the connector classification in which the classification of the radio telephone network connected to the docking adapter 2 is connected to a connector 54. Namely, in case PHS4 is connected for the cable equipped with the connector 61 for PDC in case a digital cellular phone 3 is connected again, a cable equipped with the connector 62 for PHS is prepared, and the classification of a circuit can be distinguished now by using properly according to the radiotelephony which uses these.
[0036] Specifically, it distinguishes by RISC-CPU51 electrically by changing a grand pin in a connector 61 and a connector 62. Moreover, it judges whether which telephone was connected to the connector 54 by having a grand pin common to connectors 61 and 62.
[0037] Next, it explains with reference to the flow chart which shows the operation concerning the communication link of the image pick-up system of this operation gestalt which makes such a configuration to drawing 3 , drawing 4 , and drawing 5 . In addition, drawing 3 and drawing 4 R> 4 are the flow charts which showed the actuation at the time of communicating the image data picturized or recorded with an electronic camera 1 using the radio telephone network of a general wire telephone circuit, a digital cellular phone 3, and PHS4 grade, and drawing 3 shows flows of control according [drawing 4 R> 4] the flows of control by the control section by the side of an electronic camera 1 (RISC-CPU11) to the control section by the side of the docking adapter 2 (RISC-CPU51) again, respectively.
[0038] If a user operates actuation key 23a and asks for transmission of image data after the power source of an electronic camera 1 has turned on as shown in drawing 3 (step S1), RISC-CPU11 will control a related circuit to perform various setup concerning the transmission mode shown in drawing 5 . That is, a user can set image data transmission to "independent transmission", "automatic transmission", "auto-receipt", etc. by actuation key 23a, display LCD23b, etc. (step S31). Moreover, a phase hand identifier, the telephone number, the circuit class to be used can also be registered (step S32).
[0039] Returning to drawing 3 after these various transmission-mode setup, RISC-CPU11 by the side of an electronic camera 1 judges whether the docking adapter 2 is connected to the serial connector 32 (step S2). When the docking adapter 2 is connected here, it moves to drawing 4 and RISC-CPU51 by the side of the docking adapter 2 judges whether radiotelephony is connected to the connector 54 (step S21). In addition, this decision can be electrically judged, if it is connected to a connector 54 among the connectors 61 and 62 for object [for digital cellular phones 3], or PHS4 any they are.
[0040] When the telephone is not connected to the connector 54 at all at this step S21, it moves to processing of RISC-CPU11 of drawing 3 , predetermined error processing and error message processing are performed in step S4 and S5, and the transmission processing concerned is ended.
[0041] Moreover, when the telephone is connected to the connector 54 in step S21, RISC-CPU51

distinguishes any of a digital cellular phone 3 and PHS4 this telephone (carrier) is (step S22). This decision can judge now electrically the connector 61 for digital cellular phone 3 in the connector connected to the connector 54, or the connector 62 for PHS4.
[0042] setting information including the information which performs a processing setup suitably in the above-mentioned step S22 according to the classification of the telephone connected to the connector 54 (step S23, step S24), and shows the class of this telephone -- a serial connector 55 -- minding -- RISC-CPU 11 of an electronic camera 1 -- sending out -- this RISC-CPU 11 -- for example, display LCD23b controls in order the class of telephone connected.
[0043] Then, it moves to drawing 3 and RISC-CPU11 performs dial and line connection processing (step S10), and transmission information transmission-and-reception processing (step S11) with the procedure stored in ROM13 according to the setting information from the docking adapter 2 side.
[0044] It moves to the processing of RISC-CPU51 again shown in drawing 4 , and after distinguishing the classification of the connected telephone again (step S25), the transmission protocol and digital error correction processing of having been suitable for each class, and original processing according to a circuit class are performed (step S26, step S27).
[0045] Then, if transmission is completed in drawing 3 (step S9), the transmission processing concerned will be ended.
[0046] On the other hand, when the docking adapter 2 is not connected to the electronic camera 1 in the above-mentioned step S2, it judges further whether the personal computer is connected with a serial connector 32, or it is a wire telephone circuit through a modem by RISC-CPU11 (step S3).
[0047] At this step S3, since the communication link as the telephone line is not performed when the personal computer is connected, in step S4 and S5, predetermined error processing and error message processing are performed, and the transmission processing concerned is ended.
[0048] Moreover, at step S3, when the modem is connected, dial and line connection processing (step S6), and transmission information transmission-and-reception processing (step S7) are performed under control independent [RISC-CPU11]. Furthermore, predetermined processing for a modem connection is performed (step S8), and the transmission processing concerned is ended after the completion of transmission (step S9).
[0049] Next, about record actuation of the image pick-up image in the electronic camera 1 concerned, the flow chart shown in drawing 6 is made reference, and is explained briefly.
[0050] As shown in drawing 6 , it waits to turn on 1st release with which an electronic camera 1 will not illustrate RISC-CPU11 if a user chooses a recording mode by actuation key 23a etc. in a power-source ON state (step S41) (step S42). If this 1st release is turned on here, RISC-CPU11 will control a photometry, the ranging sensor 20, and the AF/AE circuit 21, and will perform an automatic focus and automatic exposure (steps S43 and S44).
[0051] Then, RISC-CPU11 once incorporates image data for 2nd release-on to RAM14, after [if turned on,] picturizing a photographic subject image by CCD17 and changing into image data, waiting (step S45) and (step S46). Then, RISC-CPU11 performs an image processing and compression processing suitably (steps S47 and S48), and writes the image data concerned in a memory card (step S49).
[0052] Thus, when putting the digital data concerning an electronic camera on a radio telephone network according to the image pick-up system of this operation gestalt, it is not necessary to prepare a PC card expensive only by equipping with a docking adapter, and big etc. for an electronic camera according to the classification of a radio telephone network, and the image pick-up system for the picture transmission excellent in economical efficiency and migratory can be offered.
[0053] In addition, in this operation gestalt, the docking adapter 2 may be connected not only through this but through a predetermined code etc., although considered as the configuration which carries out direct continuation to the serial connector 32 of an electronic camera 1 by the serial connector 55.
[0054] Moreover, although it was made to distinguish by the connectors 61 and 62 by which the classification of the radio telephone network (a digital cellular phone 3 or PHS4) connected to the docking adapter 2 is connected to a connector 54 automatically (electrically), you may make it switch not only with this but with hand control with this operation gestalt.

[0055]
[Effect of the Invention] As explained above, it does not depend on the classification of the telephone line which is used according to this invention, but an image pick-up system equipped with the adapter equipment which can send and receive image data certainly, image pick-up equipment, and these equipments can be offered.

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TECHNICAL FIELD

[Field of the Invention] This invention relates to an image pick-up system equipped with the image pick-up equipment which can transmit and receive image data, the adapter equipment connected to this image pick-up equipment, and these equipments using the telephone line.

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PRIOR ART

[Description of the Prior Art] Although the technique which sends and receives digital data using transmission routes, such as the telephone line, is in the place known widely conventionally, the technique which sends and receives the image data photoed with the electronic camera using this telephone line etc. is also being established in recent years. When carrying out such a communication link, the technique which many connect adapters, such as a modem, to an electronic camera, and is connected to the telephone line through this adapter is taken.
[0003] On the other hand, wireless pocket mold telephones, such as the so-called digital cellular phone (PDC) and PHS, are used widely in recent years. Each of these is wireless types, and is rich in portability, and considering the actual condition of an electronic camera with much use of being carried too, these radio telephone networks are the optimal as a transmission route of image data.
[0004] Here, the example of 1 configuration of the conventional picture transmission system for putting the data concerning an electronic camera on a wireless pocket mold telephone is explained briefly.
[0005] Drawing 7 is the explanatory view having shown the configuration of the starting image transmission system, and shows the image transmission system which connects a digital cellular phone 103 to an electronic camera 101 through PC card 102.
[0006] As shown in drawing, PC card 102 is equipped with high-speed synchronous serial RX besides digital error correction circuit 122a constituted as hardware, high-speed synchronous serial TX, low-speed asynchronous serial RX, low-speed asynchronous serial TX, communication link I/F122 equipped with the function to process each signal of a transmission-and-reception control signal, the predetermined I/F section, etc., and this communication link I/F122 is controlled by CISC-CPU121. Moreover, in an electronic camera 101, it connects by the PC card header unit 113, and PC card 102 is further equipped with the connector area 123 to which a digital cellular phone 103 is connected.
[0007] In addition, an electronic camera 101 is equipped with RISC-CPU111 which manages control of the whole equipment, and I/F112 for connection with PC card 102 is arranged.
[0008] In the conventional picture transmission system which makes such a configuration, the classification of the radiotelephony connected for the reason mentioned later was restricted to one. Although a digital cellular phone and PHS are known as a classification of radiotelephony now, these cannot be used in common, when it takes into consideration as a transmission means of digital data. That is, it is necessary to differ in a digital error correction circuit and a telephone I/F means also in the above-mentioned PC card, and to change the PC card used according to the classification of a telephone.

[0009] On the other hand, since such a PC card will exist as an adapter of variety independence according to the telephone classification connected, it consists of hardware that the above-mentioned digital error correction circuit should be equipped [therefore] only with the circuit of dedication, without realizing by software.

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, it does not depend on the classification of the telephone line which is used according to this invention, but an image pick-up system equipped with the adapter equipment which can send and receive image data certainly, image pick-up equipment, and these equipments can be offered.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] Thus, although the image data transmission and reception using a radio telephone network are convenient, similarity does not have the modem which these digital cellular phones and PHS have taken a completely different data transmission method, therefore is connected to a circuit, either. Moreover, in respect of a digital data processing system, each these wireless type telephone line differs also from the general wire telephone circuit, and modems also differ.

[0011] That is, while the user of an electronic camera needed to prepare the modem corresponding to the classification (classification of a cable, wireless or a cellular phone, and PHS) of the telephone line and was very uneconomical, having considered carrying two or more sets, it was inconvenient also to carrying and migration.
[0012] This invention is made in view of this trouble, and it does not depend on the classification of the telephone line to be used, but aims at offering an image pick-up system equipped with the adapter equipment which can send and receive image data certainly, image pick-up equipment, and these equipments.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is drawing having shown the outline configuration of the image pick-up system which is 1 operation gestalt of this invention.
[Drawing 2] In the image pick-up system of the above-mentioned operation gestalt, it is the explanatory view having shown the configuration at the time of connecting a personal computer or a general wire telephone circuit to an electronic camera.
[Drawing 3] It is the flow chart which showed the actuation by the side of [CPU] a camera at the time of communicating the image data which set to the image pick-up system of the above-mentioned operation gestalt, and was picturized or recorded with the electronic camera using radio telephone networks, such as a general wire telephone circuit, a digital cellular phone, and PHS.
[Drawing 4] It is the flow chart which showed the actuation by the side of [CPU] an adapter at the time of communicating the image data which set to the image pick-up system of the above-mentioned operation gestalt, and was picturized or recorded with the electronic camera using radio telephone networks, such as a general wire telephone circuit, a digital cellular phone, and PHS.
[Drawing 5] In the image pick-up system of the above-mentioned operation gestalt, it is the flow chart which showed transmission-mode setting-operation.
[Drawing 6] In the image pick-up system of the above-mentioned operation gestalt, it is the flow chart which showed the image pick-up record actuation by the electronic camera.
[Drawing 7] It is the explanatory view having shown the conventional example of 1 configuration of a picture transmission system.
[Description of Notations]
1 -- Electronic camera
2 -- Docking adapter
3 -- Digital cellular phone (PDC)
4 -- PHS
5 -- Personal computer
6 -- Modem
11 -- Electronic camera side RISC-CPU
12 -- CISC-CPU
13 -- ROM
25 -- UART
32 -- Serial connector
51 -- Docking adapter side RISC-CPU
52 -- ROM/RAM
53 -- Communication link I/F
54 -- Connector for a telephone
55 -- Serial connector
61 -- Connector for digital cellular phones

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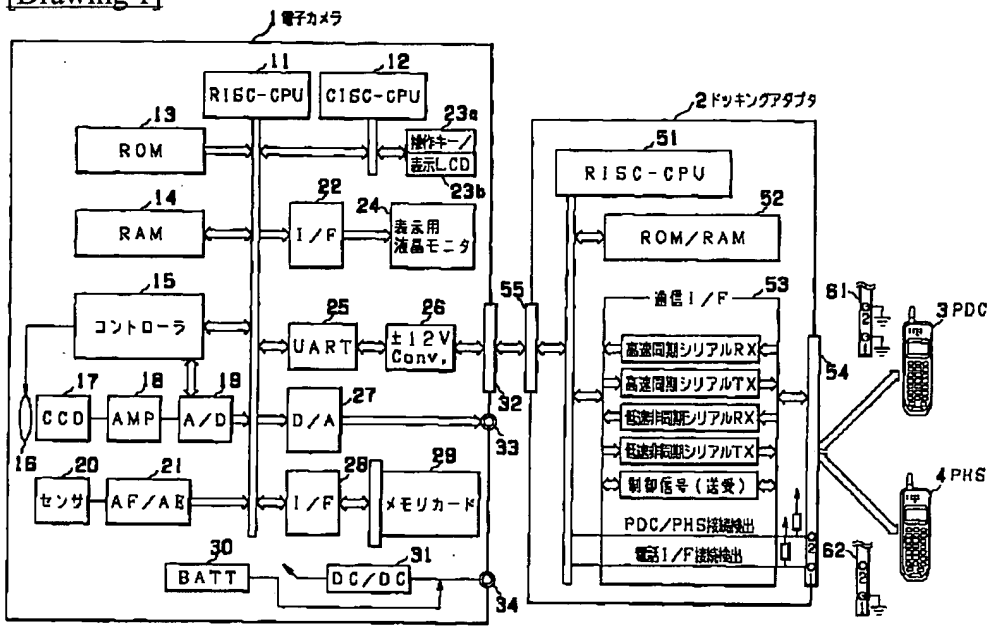
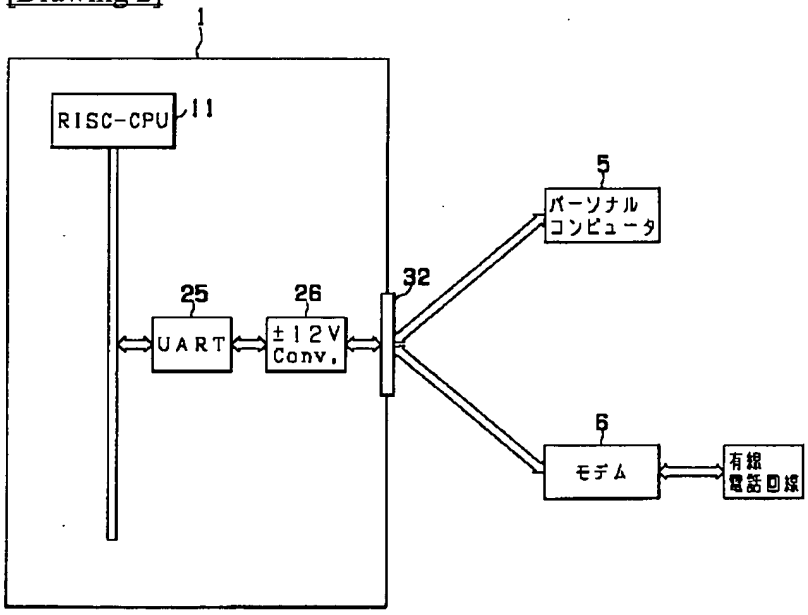
DRAWINGS

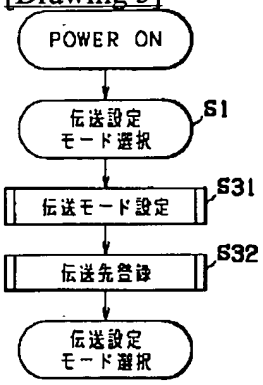
[Drawing 1]



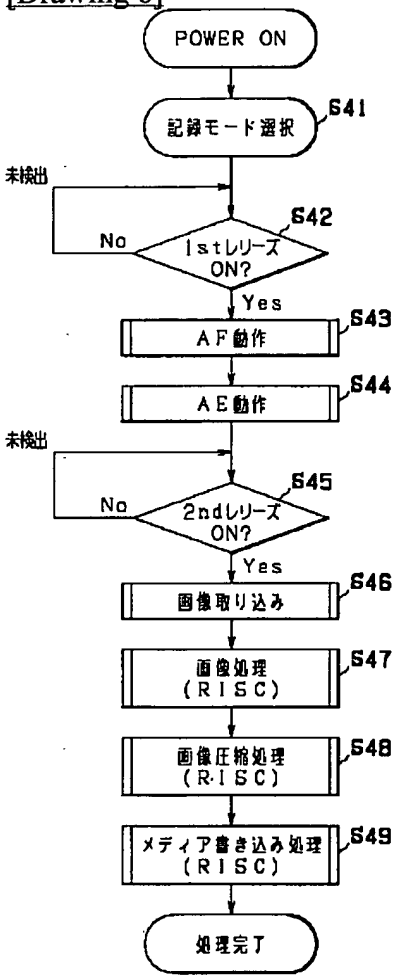
[Drawing 2]



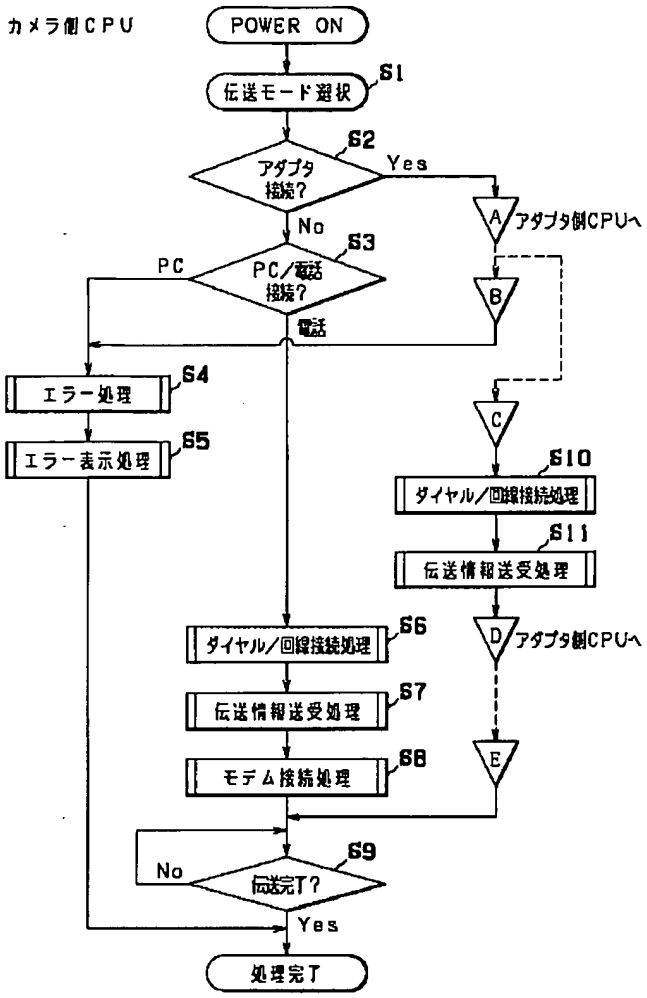
[Drawing 5]



[Drawing 6]

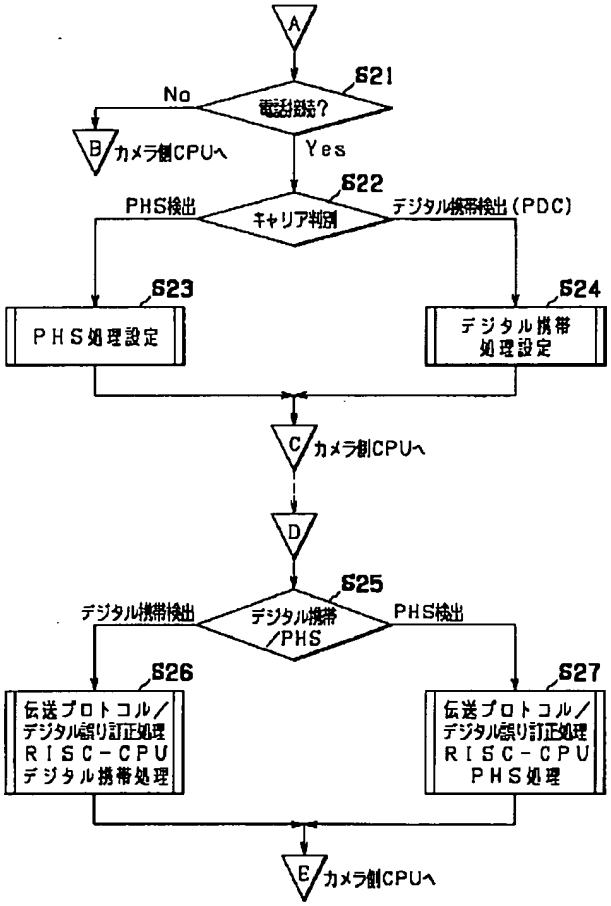


[Drawing 3]

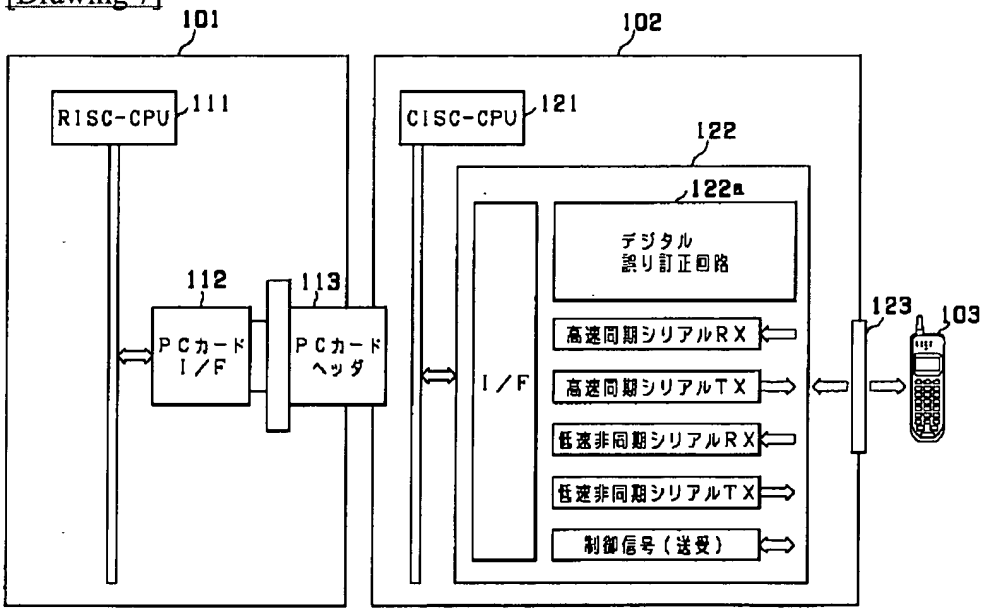

カメラ側CPU
POWER ON
伝送モード選択
S1
アダプタ接続?
S2
Yes
No
A
アダプタ側CPUへ
PC/電話接続?
S3
PC
電話
B
エラー処理
S4
エラー表示処理
S5
C
ダイヤル/回線接続処理
S10
伝送情報送受処理
S11
D
アダプタ側CPUへ
ダイヤル/回線接続処理
S6
伝送情報送受処理
S7
モデム接続処理
S8
E
No
伝送完了?
S9
Yes
処理完了

[Drawing 4]

アダプタ側ＣＰＵ



[Drawing 7]



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